



INSTRUCTION MANUAL

www.DEFENDER-USA.com

Protect what you value most.™

IMPORTANT! PLEASE READ!



**NEED
HELP?**

**DO NOT RETURN THIS
PRODUCT TO THE STORE**

Please contact a DEFENDER® customer support representative first regarding any additional information on product features, specifications or assistance with setup.

Please contact us via one of the methods below:

Support:

www.defender-usa.com/support



Online live web chat:

Visit www.defender-usa.com

For more product information visit **www.defender-usa.com**

Note: This is manual version 1.0 you may find updated versions by visiting our website.

WARRANTY INFORMATION

PRODUCT WARRANTY INFORMATION

Please visit our website at www.defender-usa.com for information about your product's warranty.

We take quality very seriously. That is why all of our products come with a one-year warranty from the original purchase date against defects in workmanship and materials. If you have warranty or support issues please contact us using any of the following methods:

Support: www.defender-usa.com/support

Website: www.defender-usa.com

DEFENDER® USA

60 Industrial Parkway #Z64
Cheektowaga, NY
USA 14227

DEFENDER® CANADA

4080 Montrose Road
Niagara Falls, ON
Canada L2H 1J9

Warranty Terms

1. DEFENDER® products are guaranteed for a period of one year from the date of purchase against defects in workmanship and materials. This warranty is limited to the repair, replacement or refund of the purchase price at DEFENDER®'S option.
2. This warranty becomes void if the product shows evidence of having been misused, mishandled or tampered with contrary to the applicable instruction manual.
3. Routine cleaning, normal cosmetic and mechanical wear and tear are not covered under the terms of this warranty.
4. The warranty expressly provided for herein is the sole warranty provided in connection with the product itself and no other warranty, expressed or implied is provided. DEFENDER® assumes no responsibilities for any other claims not specifically mentioned in this warranty.
5. This warranty does not cover shipping costs, insurance, or any other incidental charges.
6. You **MUST** contact DEFENDER® before sending any product back for repair. You will be sent a Return Authorization number with return instructions. When returning the product for warranty service, please pack it carefully in the original box with all supplied accessories, and enclose your original receipt or copy, and a brief explanation of the problem (include RA #).
7. This warranty is valid only in Canada and the continental U.S.
8. This warranty cannot be re-issued.



CAUTION

RISK OF ELECTRIC SHOCK, DO NOT OPEN UNIT



TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER (BACK).
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Contents

I Introduction.....	4
1 Brief Introduction.....	4
2 Main Features.....	4
II Installation.....	4
1 Package Content.....	4
2 Front Panel Operation.....	4
3 RearPanel of Operation.....	5
4 Remote Controller.....	5
5 Hard Disk Installation.....	6
1) Installation procedure.....	6
6 Rear Panel Connection.....	6
III Menu Description.....	6
1 Menu Structure.....	6
2 Menu Operations.....	8
IV Operations.....	8
1 Turn on.....	8
2 Preview.....	9
1) Channel Status Display Area.....	9
2) system status bar.....	9
3) Tool Bar.....	10
3 Record.....	10
1) Manual Record.....	10
2) Record Schedule.....	11
4 Camera Control.....	11
1) PTZ Control.....	11
2) Motion Detection Settings	12
3) Mask Setting	12
5 Playback.....	12
6 Backup.....	13
7 Alarm Settings.....	14
1) Alarm Input.....	14
2) Alarm linkage.....	14
3) Alarm Defence and Schechle	14
4) DEVICE EXCEPTION ACTION.....	14
8 Network operation.....	14
1) Network settings.....	14
2) Web Client Operation.....	15
3) Web Screen Description.....	15
4) Device Parameters Settings.....	16
5) Playback.....	17
6) Bidirectional Talk	17
7) Log.....	17
8) Remote Upgrade.....	18
9 Maintenance.....	18
10 Advanced Settings.....	18

V Appendix..... 20

1 Specifications..... 20

2 Methods of Calculating HDD Capacity..... 21

 1) Calculate the maximum capacity of the build-in hard disk..... 21

 2) Calculate the compression bit rate for recording T hours..... 21

3 Default Values..... 21

4 Introduction of Mobile phone Monitor..... 23

 1) Configuration of server (DVR)..... 23

 2) Installation and running of client (mobile phone) procedure..... 23

Chapter One: Introduction

1 Brief Introduction

This Series DVR is 4-channel playback H.264 main profile stand alone DVR with Pentaplex function: record, playback, live preview, remote preview and backup supported.

With professional and high performance intelligent audio & video solution, user-friendly GUI and practical industrial designs, this series DVR is quite suitable for civil applications such as home, stores, Internet bars and small offices besides the common security & surveillance applications.

2 Main Features

*Compression

4/8 channel PAL/NTSC/SECAM video input and H.264 compression standard with each channel being compressed independently in real-time CIF resolution or non- real time D1,2CIF resolution

4 channel audio input and G.726/ADPCM-IMA compression standard with each channel being compressed independently in 24Kbps.

Compressed video & audio are synchronous. You can select either mixed stream or individual video stream.

Four-level selection of record quality and self-defined bit rate and frame rate supported.

Adjustable video parameters.

Multi-area motion detection.

OSD of channel name and time supported.

*Recording

Manual record and schedule record supported. The schedule record types include: timing, motion detection, alarm, motion detection | alarm.

SATA harddisk supported.

Backup and clip record files through USB flash disk, portable USB HDD, and USB CD/DVD RW supported.

*Preview and Playback

Simultaneous output of VGA and TV.

Up to 4 channels playback in fast play mode, slow play mode, rewind and single frame forward supported.

OSD of channel name and time supported.

Status displaying of local record, alarm and motion detection supported.

*Control

Controlling of PTZ and dome supported.

Controlling multiple DVRs with one RS485 keyboard.

Setting and calling preset, sequence and track supported.

*Alarm

Local alarm (includes exception and motion detection, video loss and hard disk full) triggered handling supported.

Alarm linkage: triggered record, linkage alarm output and linkage PTZ preset, sound alarm, report to alarm center, linkage channel single screen display and E-mail.

*Network

TCP/IP supported.

PPPoE supported.

Dynamic access to IP address, Dynamic Host Configuration Protocol (DHCP) supported.

DDNS supported

Visit video files in DVR HDD through network neighborhood supported.

Real-time preview, downloading and playback remotely through network supported.

Controlling of PTZ, configuring device parameters, acquiring device status and logs, and upgrade remotely through network supported.

Local recording through network supported.

Chapter Two: Hardware

This chapter is a general description of the device interfaces and connections. It describes the way of hard disk installation, the interfaces of the front panel and the rear panel for users to connect cables correctly.

1 Package Content

After purchasing DVR product, unpack it and unload it on a flat floor or a place where it is to be located, and refer to the "Package Contents" for counting device fittings.








2 Front Panel Operation

Table I-1 Front Panel Description		
Type	Name	Description
LED	Power	Red when recording; Green when non-recording
	HDD	Hard disk indicator. Green, or blinks when reading/writing. Black when non-operation.

3 Rear Panel of Operation

Table II-2 Rear Panel Description		
NO.	Interface	Description
1	Video In	4/8 channels video input: BNC (1Vp-p, 75Ω)
2	TV Out	1 channel TV output, BNC (1Vp-p, 75Ω)
3	Audio Out	1 channel audio output, BNC (2Vp-p, 600Ω)
4	Audio In	4 channels audio input: RCA (2Vp-p, 600Ω)
5	VGA output	1: DIN-15
6	Network interface	1: RJ45 10/100M self-adaptive
	USB interface	2: USB 2.0
7	RS485	1: Half duplex (+ -)
8	Power	DC 12V

4 Remote Controller

Table II-2 Rear Panel Description		
NO.	Name	Description
1	REC	Record
2	Power on/off	Turn on/off the device
3	Numbers	Input numbers or select to switch among relevant channels.
4	Function Buttons	DEL: Delete
5	Arrow Buttons	When in menu mode, press [◀], [▶] to move to selection boxes, press [▲], [▼] to select submenu parameters.
6		1) Press it to confirm operations in menu mode. 2) Press it to select record type in setting schedule. 3) Press it to change status of the current motion detection block.
7		Switch from single screen and multi-screen
8	FN	1) Press it to switch from single split to multi splits view mode, or reverse in preview and playback mode. 2) Press it to enter/exit continuous selection when setting motion detection area and schedule record. 3) Press it to set start time and end time in file search.
9	MENU	One key system setup
10	ESC	Return to previous menu
11	PTZ	One key PTZ control
12	BACKUP	Backup record.
13	TV/VGA	Switch the operation interface between TV and VGA.
14	 CLEAR	Alarm off
15	SEQ	call sequence
16		1) Play/Pause 2) One key file search.
17		Stop
18		play in slow mode/fast rewind
19		fast forward

5 Hard Disk Installation

The hard disk is not included in factory fittings. Users can mount suitable hard disk by calculating its capacity referring to "Appendix 5.2 Methods of Calculating HDD Capacity".

1) Installation procedure

*Open the DVR case. Mount the 4 shock absorption washers into the clamping slots (four protruding steps) in the case.

*Connect the HDD data cable and HDD power cable to HDD.

*Attach the hard disk to the shock absorption washers by aiming installation holes to the case, hold and fix them by 4 M3*12 Head Screws plus plain washers.

*Connect the HDD data cable and HDD power cable to the respond interfaces of main board.

*Replace the DVR top cover, and fix it by screws.

Note1: If installing your own HDD, please be sure to purchase a DVR Rated HDD instead of a Computer Rated HDD. Computer Rated HDDs are not designed for continuous DVR use.

Note2: Please format HDD for the first use, or system will sent error notification of "Hard disk error" accompanied with audio alarm. Please see 4.9 Maintenance for details.

6 Rear Panel Connection

*Power Input

Connect power adapter to Power Input interface of DVR. Confirm that the DVR power supply input switch is positioned correctly for the local voltage before connecting and powering on the unit.

Turn on the unit. The power LED will light if the power cable is connected correctly.

Note: Please use the power adapter contained in the package.

*Video Input

The video input interface is standard BNC socket, 1Vp-p, 75 Ω .

Note: The video signal cable should keep away from the interference of strong electromagnetism and city electric field.

*Audio Input

The audio input interface is standard RCA socket, 2Vp-p, 600 Ω .

Note: The audio input resistance is a little bit high; please use active sound collection device or active microphone. And the audio signal cable should keep away from the interference of strong electromagnetism and electric field.

*Network Input

The network input interface is RJ45 10/100M self-adaptive.

Note: Confirm that the network band width is enough for transmitting high definition image smoothly.

*Alarm Input and Output

The alarm input device should be the type of GND connected alarm or voltage input alarm, which can be set as N/O. or N/C.

The requirement of signal input level for voltage input alarm type is: low level: 0~2V; high level: 5~15V.

The green angle pins of signal cable are supplied for access of PTZ and alarming devices. Please follow these steps to connect:

- 1、 Pull out the angle pins that inserted in the alarm input and output interfaces.
- 2、 Screw out the screws by micro Philips screwdriver, insert the signal cable into interface under spring, and then tighten the screws.
- 3、 Plug in the connected pins into green angle pin socket.

*PTZ Input

Connect the PTZ control interface to RS485 interfaces of rear panel. The connection method is similar as above.

Note: Please refer to PTZ manual for setting specific parameters, for some PTZ devices contain multiple telecommunication protocols, baud rates and IDs.

Video output: VGA/Monitor Input

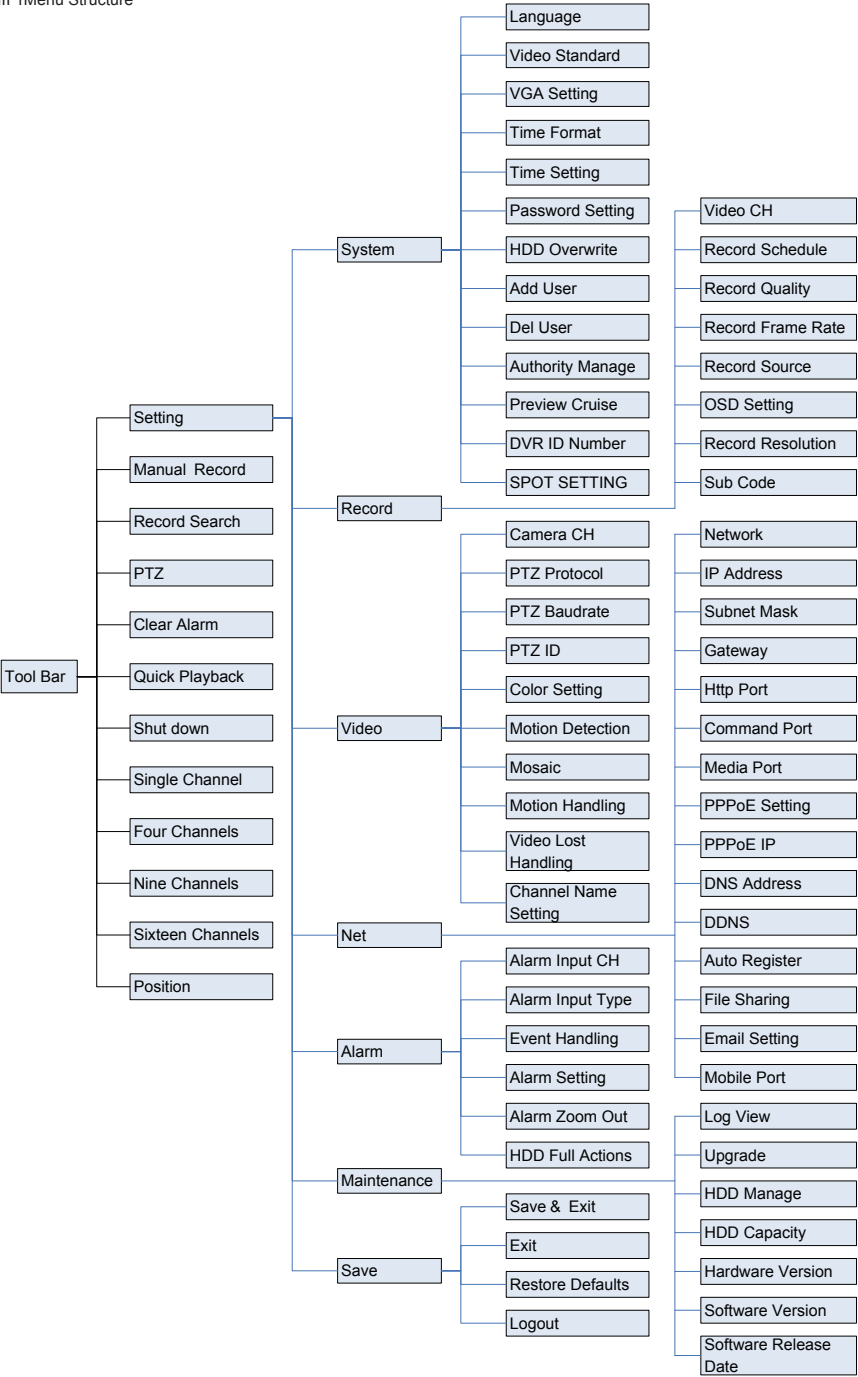
Video output interface: TV andVGA, which can work together simultaneously.

Note: VGA and TV cannot be in the operation interface simultaneously, but be switched by mouse, panel and remote control in the menu.

Chapter Three: Introduction

1 Brief Introduction

FigIII 1Menu Structure



2 Menu Operations

Press [SET] button to enter into system setting screen.

Press [●] button to start/stop recording manually.

Press [▶||] button to play record file.

Press [PTZ] button to enter into PTZ control screen.

Note: This manual indicates the Menu selection icons and selection boxes in [XX]; the buttons in Menu screen (except menu selection icons) in [XX]; the buttons on front panel and remote controller in [XX].

The highlight menu is the current active one. User can move highlight icon to the menu needed using [▲]、[▼]、[◀]、[▶] button, and press [OK] button to confirm selection, or press [ESC] button to return to upper menu.


Selection box: User can move highlight icon to the selection box needed using [◀]、[▶] button, and press [OK] button to confirm selection. Multiple items are allowed to be selected together at once by left clicking mouse.

Sub menu list: User can move highlight icon to the sub menu needed using [◀]、[▶] button. Or roll mouse to select directly. Only one item can be selected here.

Edition box: when in edition box, user can type in numbers directly by pressing number buttons. Press [DEL] to delete the character before cursor and press [OK] or [ESC] button to exit.

Sub screen button: Press it to pop up sub screen. When in sub screen, select [Confirm] to save configuration and return to the upper menu. Press [ESC] or select [Cancel] to return to the upper menu without being saved.

Use [◀]、[▶] to move highlight icon to any of the selection boxes. Press [OK] button to switch to another selection status. Use [▲]、[▼] to specify the sub menu value where sub menu selections exist.

Exit: User can click  button on the right upper corner, or single right click mouse, or press [ESC] button to enter into the Save & Exit screen. You can select exit directly or exit after being saved.

Note: There are two different ways to take effect: take effect instantly, take effect after being saved. Please refer to the navigation for details.

Chapter Four: Operations

This chapter mainly describes the main system operations of DVR. Please see the following contents for details.

1 Turn on

*Start-up


The Power LED will light after powering on correctly. Please refer to 2.6 Rear Panel Connection for details of connection method. Press [Power on/off] button to start up device. The preview screen will appear. After pressing [ESC] button of panel or remoter, or right clicking mouse, the login box appears. Please select proper user and type in relevant password to log in.

Note1: It costs about 60 seconds to start up, please wait for a moment.

Note2: Modify password by selecting <Tool Bar>→<System>→<System Setting>→<Password Setting>. Set as indicated, new password will take effect instantly.

Note3: Default password for Admin is 111111. Default password for User is 111111; Admin password can be restored to factory defaults by short-circuit "JP 1" on main board. After logging in the DVR by Admin, the Admin user can change user's password. The system support 8 users, and the Admin is the manager user with all permissions, whose name cannot be deleted or changed. The Admin user can add and delete all other users and the permissions corresponding.

Note4: The DVR will buzz and "NO Hard disk" appears when without hard disk. User can choose whether to buzz or not when without hard disk.

Note5: The DVR can identify display device automatically. When connected either to VGA or TV, the menu will be on the specified screen automatically after start-up; when connecting VGA and TV simultaneously, two images will be displayed on the screen, the menu will be on the VGA firstly. User can switch by clicking  in the tool bar.

*System settings

Language: Please enter<Tool Bar>→<System>→<System Setting>→<Language> to set language.

VGA Resolution: Please enter<Tool Bar>→<System>→<System Setting>→<VGA Resolution> to set VGA resolution and refresh rate. It supports 800×600@60Hz、1024×768@60Hz、1280×1024@60Hz、1440×900@60Hz currently. Please select relevant values according to the parameters of VGA.

Date/Time: Please enter<Tool Bar>→<System>→<System Setting>→<Time Format> to set time format. 12 hours and 24 hours are supported. Please enter<Tool Bar>→<System>→<System Setting>→<Time Setting> to set date and time.

Video Standard: Please enter<Tool Bar>→<System>→<System Setting>→<Video Standard> to set video

standard. PAL, SECAME, and NTSC are supported. Please set according to the parameters of camera.

Note1: Please make sure the HDD is not recording when you set the system time, as it could cause an error while playing back recorded video.

Note2: "Language" and "Time" will take effect instantly. "Record Resolution" and "Video Standard" will take effect after being saved.

Note3: when the resolution setting exceeds the range of the display, please click [ESC]→[2]→[ESC] on the Front Panel or remote controller (within 3 seconds) to reduce the resolution to 800X600@60HZ

Note4: Users can refer to the navigations on the bottom of the main screen to look for relevant guides. Meanwhile, navigation info will display "take effect instantly" / "take effect after being saved"

2 Preview

After start-up system, the screen has live view area and tool bar. Right click mouse in preview mode or press [OK] on the front panel, the Tool Bar will appear. System status column can be dragged to anywhere on the screen by mouse. It will be back to the original position after device restarting. The column can be hidden by right-clicking the mouse.

Videos, OSD of channel name, record time, and alarm notifications will be displayed on the screen.


1) Channel Status Display Area

Under preview mode, channel shows current input image and channel status information (video status and mode, motion detection)

*View Mode Switching

When in 1/4/6/8/9/16 splits view mode, the tile with high light green border is the current selected one. User can use mouse or press [Direction] buttons to switch to another tile. If the audio output device is connected, the audio can also be previewed together with video. The audio of current channel can be previewed besides in playback mode.

User can select to display a single particular channel by pressing the Numbers buttons.

When in preview mode, user can enter into 1/4/6/8/9/16 splits view mode by pressing  button directly, or reverse.

Note: For 8 channel DVR, the view mode can be directly switched by tool bar. Please refer to 4.2.3 "Tool Bar"

*Image Parameters Setting

Please enter <Tool Bar>→<System>→<Video>→<Color Setting> to set brightness, contrast, hue and saturation. It will take effect instantly.

Note1: User can set image parameters of one channel one time or all channels together at once by selecting [All] in <Camera Channel>. It is similar in other screen when user wants to set four channels together at once: select [All] in <Channel>.

Note2: In preview mode, brightness, contrast can be adjusted by remote controller directly.


*OSD Settings

The OSD of channel name and system time is supported. Please enter <Tool Bar>→<System>→<Record Setting>→<OSD Setting> to set. The channel name will be displayed on left upper corner and the channel time will be displayed on the right corner of the screen.

*Channel Status Display Area

The channel statuses include: "motion detection triggered recording" / "common recording" / "motion recording" / "alarm triggered recording" / "external alarm input" / "alarm output".

Indication of "motion detection" / "common recording" / "alarm recording" will be displayed on the right upper corner of screen. The details are as follows:

 indicates "motion detection". The settings of motion detection include sensitivity and area selection. Please see Motion Detection Settings for details.





 Blue indicates "common recording". Please see Record for details.

 Green indicates "motion detection triggered recording".

 Red indicates "alarm triggered recording".

 Grey indicates "manual recording".

Indication of "external alarm input" / "alarm output" will be displayed on system status column or Tool Bar. The details are as follows:





: The 4/8 icons indicate the alarm input status. If alarm defence mode is set, the icon is , otherwise it is . When alarming, it changes into red . External alarm input can trigger multiple events handling, please see Alarm Settings for details.

: The 1/4 icons indicate alarm output. When alarming outputs occurring, it changes into red .

2) system status bar

In preview mode, the system status bar will display current system status, including: "External alarm input" /

"Alarm output" / "hard disk capacity" / "number of the client connection" / "system time."
















-  Indicates hard disk being ok. The number indicates the percentage of the total capacity of the hard disk.
-  Indicates "Hard disk error" Or "No hard disk".
-  Indicates client connection. The number shows client linking number
-  Indicates "No client connection"

3) Tool Bar

Right click mouse or press [OK] button in preview mode, the Tool Bar shown as below will appear:



Fig IV 1 System toolbar

- : Hide the tool bar.
- : System configuration. Please see 3.1 Menu Structure for details.
- : Manual record. Please see 4.3.1 Manual record for details.
- : Search, playback and backup record files, please see 4.5 Video Playback and 4.6 Videl Backup for details.
- : PTZ operation. Please see 4.4.1 PTZ Control for details.
- : Click to cancel alarm notification. Click this button will pop a message to show the present alarm information.
- : Fast playback. User can enter 10, 20, 30, or 60 seconds before position to start playback and can also jump to a specified time in the video.
- : Power off. Click this button will pop a message of "confirm password". User has to enter Admin password to shut down.
- : To set the preview mode of "Single splits view", "4 splits view", "6 splits view" "8 splits view" "9 splits view" "16 splits view"
- : Fast switch TV and VGA. Menu will not be available on the current screen, only a preview image.
- : To adjust the screen, 8 pixels per unit.
- : To reduce or increase screen in vertical direction.
- : To reduce or increase screen in horizontal direction.
- : To move the screen up, down, left, right.
- : To zoom out the screen to largest and show in central.

Note1: When mouse moves to the tool bar icon, the indication information will come out to help users to understand.

Note2: When video source is PAL, screen display range max is 720*576; When NTSC, screen display max 720*480.

Note3: Switch display menu between VGA and TV by selecting [ESC]→[1]→[ESC] (sequence must be pressed within 3 seconds) on the remote control or Front panel.

3 Record

Record type contains manual record and schedule record. The priority of manual record is higher than schedule. If the record schedule is conflict with manual record, the manual record will be processed firstly until the manual record being canceled.

Record types include "common recording" / "alarm triggered recording" / "motion detection triggered recording" / "alarm | motion detection triggered recording". Each of them is indicated with grid of different color, and each color indicates a particular record status. Please see Fig IV-2 record schedule for details.

Record resolution: The device support "CIF" / "HALF D1" / "D1" format.


Record quality: "Best 768Kbps" / "High 640Kbps" / "Better 512Kbps" / "Common 384Kbps". And "User setting" can help user to set one bit rate up to 2048Kbps.

Record frame rate: if the current selection is PAL, the frame rate options are "All" / "12" / "6" / "3" / "1" / "Customized". If the current selection is NTSC, the frame rate options are "All" / "15" / "7" / "3" / "1" / "Customized". Default is "All", 25 fps for PAL and 30 fps for NTSC.

Record Resource: "Video" for video only or "Video and Audio" for recording video and audio.

Note1: Please refer to Appendix 6.2 for the methods of calculating HDD capacity.

1) Manual Record

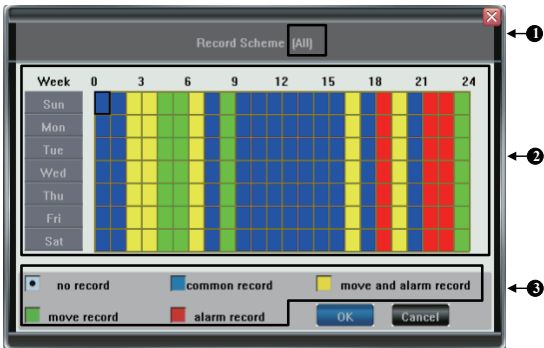
Please enter <Tool Bar>→<Manual Record> to let the specific channel record or not. Press  button to start/stop recording manually.

Note1: The type of the video recorded manually is "common recording".

Note2: The highest priority of record mode is manual record.

2) Record Schedule

Please enter<Tool Bar>→<System>→<Record Setting> to set record schedule. The setting screen is shown as the figure below:



FigIV 2Record Schedule

- ① The current recording channel number
- ② The record schedule
- ③ Description of record type

Users are free to select a week day or the day of a period of time System provides a recording option for hours every day ora week day. Unit is hour. One grid indicates one hour.

- ① Move highlight icon to a time grid using [Direction] buttons.
- ② Specify the recording type by repeat pressing [OK] buttonor double left clicking mouse,(the color of the grid will change relevently).
- ③ Select [OK] to confirm settings. The settings will take effect after being saved.

Note1: User can copy the current setting onto the neighboring grid by pressing [Fn] button first, [Direction] buttons secondly, and then the [Fn] button again to exit. Or user can drag mouse to set.

Note2: When motion detection recording is selected, the motion detection sensitivity and area should be set ahead. Please refer to 4.4.2 Motion Detection Settings for details. When alarm recording is selected, the alarm triggering settings should be set ahead. Please refer to 4.7.2 Event Handling for details.

4 Camera Control

1) PTZ Control

*PTZ Settings

Enter <Tool Bar>→<System>→<Video> to set camera channel, protocol, baud rate and ID.















Note: The different PTZ controlled by one PCI should have corresponding PTZ ID. There are 256PTZ ID supported currently: 0-255.

*PTZ Operations

In preview mode, select a tile first (in 4/9/16 splits view mode, the selected tile is with highlight greenborder) using mouse or [Numbers] buttons, and then enter <Tool Bar>→<PTZ Control> to the PTZ Control screen that described as the table below:

Table IV 1 PTZ Operation Description



Table IV 1 PTZ Operation Description		
NO.	Name	Discription
①	Direction	Click the arrow icons to control direction of PTZ. Click the center icon  to call sequence or run scanning. Please refer to the PTZ manual for details of PTZ scanning mode.
②	Speed	Set the turning speed of PTZ camera.
③	Advanced	Click  and  to show/hide the advanced setting screen (the part under the blue bar).
④	Focus	Click to focus-in and focus-out (it is disabled for cameras with automatic focus).
⑤	Iris	Click to make the image brighter or darker (it is disabled for cameras with automatic iris adjustment).
⑥	Auxiliary	Open/close auxiliaries. Click  to open and click  to close. Different functions respond to different protocols. The auxiliaries include light, rain brash, and power etc. please refer to PTZ manual for details. NOTE: Up to 2 auxiliaries are supported on device side. Up to 4 auxiliaries are supported on client web side.
⑦	Zoom	Click to zoom in/zoom out (it is disabled for cameras with automatic focus).
⑧	Preset	1, Select the preset number in the preset window. 2, Position the camera as desired position. Save the position by clicking  . Repeat the step 1 and 2 to reset the desired position. Call preset: Select the preset number you want to call, and click on the go to button  . Clear/reset preset: Select the preset number you want to clear/reset and click on the clear button  .
⑨	Sequence	Sequence is a running route of camera that passes through multiple presets. Set sequence: 1. Select preset number you want to call. Click on set button  . 2. Repeat step 1 and 2 to add the other presets till finishing. Click  button to end setting. Click on  button to clear sequence.
⑩	Track	Track is a continuous running route of camera. Set track: 1. Click on  to start setting. 2. Move camera as the track and pattern you want it to run. 3. Click on  again to finish setting. Click on  to run track and click again to stop running. Note: Whether Track is supported or not is depending on the type of PTZ.

Note: IE side supports 5 auxiliaries setting. Local side supports 3 auxiliaries.

2) Motion Detection Settings

Motion detection settings include sensitivity and area. The sensitivity includes three levels: High, Mid, and Low. Please select <Tool Bar>→<System>→<Video>→<Motion Detection> to set.

Mouse Operation: Drag mouse on screen to create grid.

Panel Operation: There are totally 16 X 12 blocks in screen. Move highlight icon among the blocks by using [◀], [▶] buttons. Please follow these steps below to set:

1. Move highlight icon to one of the blocks you want to create by using [◀], [▶] buttons. Press [OK] button to confirm. The created block will be in highlight blue.

2. Press [Fn] button to copy the current configuration, and press [Direction] button to copy to the relevant grid. Press [Fn] button again to exit copying.

3. Repeat steps 1 and 2 to set the second area.

Press [ESC] to exit setting.

In the Motion Detection Settings, users are free to select a certain day of the week or a period of time within a future day (Smallest unit is one hour. One block indicates one hour). System provides a recording option for hours every day or a week day.

3) Mask Setting

Mask setting function can make some regions of the image invisible. These regions in preview image and playback image are all filled with black pixels. The method to set mask is similar with motion detection setting. You can right click mouse in the area where mask have set to cancel this function. You can stop setting when you right click mouse in one area where havenomask setting. There are four regions can be set in one channel.

5 Playback

*File Search

Specify the date/time and channel number by selecting <Tool Bar>→<Record Search>. Click [Search] in the pop-up screen to start searching. The searching results will be list on the screen in responding different colors so as to distinguish different record types. Please see Fig IV-2Record Schedule for details of colors description.



FigIV 2File Search

User can click mouse or use panel to specify time.
Panel operation: move highlight icon to relevant selection box using [◀],[▶] buttons.
Move highlight icon to date/time selection box, modify time using [▲],[▼] buttons.
Move highlight icon to channel selection box, press [OK] button to select it or cancel selection.
Move highlight icon to [Zoom In/Out], press [OK] button to zoom in/zoom out timeline (time ruler). If the timeline is out ofscreen, please move highlight icon to [Zoom In/Out] and press [OK] button to display the part out of screen in order.
After setting time, channel number and timeline, move highlight icon to [Search] using [◀],[▶] buttons, and press [OK] button to start searching.
After searching over, press [Fn] button to pop-up the timeline for selecting start point. Press [◀],[▶] buttons to move timeline, press [Fn] to confirm selection. Press [Fn] again to pop-up the second timeline for selecting stop point,press [◀],[▶] buttons to move timeline, press [Fn] to confirm selection.
After all settings, move highlight icon to [Play] using [◀],[▶] buttons, and press [OK] button to start playing.
move highlight icon to [Backup] using [◀],[▶] buttons, and press [OK] button to backup.

*Playback Control



- ◀◀: Fast backwards, the availablefast backwards speeds are: 8X and 16X.
- ||: Pause the current play, or stop the current pause.
- : Stop playing.
- ▶▶: Click to control speed of Forward, the available forward speeds are 1X, 2X,4X,8x 16x, 1/2X and 1/4X.
- ▶: Go to next frame.
- ↺: Click to switch from single split view mode to 4/9 splits view mode, or reverse.

The status of playing will be displayed on the right upper corner of screen:

Indication	▶▶ 16X	▶▶ 8X	▶ 1X	▶▶ 1/2X	▶▶ 1/4X	◀◀ 8X	◀◀ 16X
Speed	16X fast forward	8X fast forward	Normal playing	1/2X forward	1/4X forward	8X fast backwards	16X fast backwards

Note: When playback only one channel, the image will display in full-screen.

6 Backup

Enter<Tool Bar>→<Playback> to search, backup and playback the specific record files you needs.
Click [Backup] to enter into the backup screen. System will detect all the backup devices available and display them. Please select the suitable device and record type according to requirement first, and click [Backup] to start storing.
Note: The record types include H.264 Raw, MP4 and AVI . When backup in MP4 types, the special player plug will also be backed up into USB together automatically. After player plug is installed, the stored video files can be played by Windows Media Player.

7 Alarm Settings

Please make sure that the alarm input and output cables are connected correctly. Please refer to 2.6 Rear Panel Connection for details.

Select<Tool Bar>→<System>→<Alarm Setting> to configure alarm parameters in the pop-up screen.

Note: All the settings will take effect after being saved

1) Alarm Input

The alarm input attribution includes N/O. and N/C. Please select a suitable attribution according to the types of alarm device connected and control modes of alarm device adopted.

N/O.: Normally open. Circuit connected when alarm single triggered.

N/C.: Normally connected. Open when alarm single triggered.

2) Alarm linkage

The alarm triggered event handling include: record/alarm output/PTZ/sound output/alarm zoom out/E-mail/report to center/FPT upload file. The channel alarm input can zoom display interval 1-10s optional. If the display interval time is set to off, the zoom display will be invalid.

After using the "zoom out image" ,Alarm zoom out, report to center, IE client preview will zoom out simultaneously.

Note1: if user wants to set alarm triggered record, please set the record schedule first at "Record Schedule".

Note2: if user wants to set alarm triggered PTZ, please select the channel number first, and then to set (only preset 1 can be selected)

Note3:After alarm, email will be sent immediately with the attachment of the caught snapshot.

Note4: Once FTP server is set, FTP will upload file after the alarm. FTP server will receive the caught snapshot.

3) Alarm Defence and Schechle

User can enable customized schedule in advanced menu, which is similar with the schechle of record .In the alarm defence status, the icon of alarm input will appear as yellow.

4) DEVICE EXCEPTION ACTION

Select < DEVICE EXCEPTION ACTION >→Enter Device exception handle screen. Choose among these three options: HDD full, network disconnect, and IP conflict. For the hard full setting, user can select "alarm output"/ "sound"/ "report to center"/ "email". Network disconnect and IP conflict can only be set to "alarm output"/ "sound". After this setting has been saved, device exception will be handled the way user has selected.

8 Network operation

1) Network settings

Please enter<Tool Bar>→<System>→<Network Setting>→<Network Connection>, there are three connection types: Static IP, DHCP and PPPoE.

*Static IP: If this type selected, please type in IP address, subnet mask, and gateway. User can ping network to check its connection status.

*DHCP: If this type selected, a DHCP server should be set in network. A dynamic IP of device will be assigned automatically and displayed on IP Address column.

*PPPoE: Click [>], the PPPoE setup screen will appear. Type in user name and password and click [OK] to confirm. System will dial automatically. After accomplishing dialing, the IP address will be assigned and displayed automatically on IP Address column. User can save the user name and password even if the dialing is not succeeded.

The following are types of ports:

*HTTP Port: It is the port number of browsing through IE. Default is 80.

*Signal Port: It is the first entry port for communication between web client and device, which is mainly used for controlling of log-in, log-out, real-time preview, remote playback, and remote download, etc.

*Media Port: It is for media stream transmitting including real-time stream, voice stream and file stream etc.

*DDNS: Click [>], the DDNS setup screen will appear. Select a DDNS server and type in the DDNS address, user name and password.

*Auto Registration: Select activating Auto Register and click [>], the register setup screen will appear. Type in the register server IP, port and register interval time.

*File sharing: After activating file sharing function, the PC is able to access video files in DVR HDD via network neighborhood.

*sharing file access methods: Open Network neighborhood, type in \\IP address, for example:

\\192.168.10.220, enter the login interface, type in the Super Admin user name and password, the shared files can be accessible now (Open folder "videoout").

Note: After player plug is installed, video files can be played by Windows Media Player.

*Email Setting: Click [>], the EMAIL setup screen will appear. This function requires to take effect of the alarm linkage. Enter the mail server address in the screen (support domain method), login account, password, recipient, sender mail address. Pressing the [Test] button next to sender mail address will send a test email.

*Mobile port: port is the channel of mobile phone when the data transmission, all the media and signaling data transmitted by this port.

*FTP server: select FTP upload, and click [>] to set FTP server IP, user name and password. The caught snapshot can be uploaded to the FTP server.

*UPNP: start UPNP, select [>], device will automatically find the intranet modem UPNP service, and map the HTTP, signal, media, cellphone port, and return the map result and modem's internet IP. After mapping is successful, user can access the IE client from an internet enabled PC through the internet IP.

*IP ACCESS: When turned off, any PC can access the device; When black list is in use, a PC with an IP entered in the black list cannot access the device's IE client, but PC not on the list can access it; When white list is in use, a PC with an IP entered on the white list can access the device's IE client, but other PCs cannot access it.

*Time synchronization: Click [>] to start synchronization, the device can automatically synchronize by setting the server name, synchronization interval, time zone.

Note1: All of these settings of network will take effect after being saved.

Note2: Currently only support PPPoE mail server with SMTP protocol.

Note3: Enter into mobile phone system and type in IP address into IE address column in the form of <http://xxx.xxx.xxx.xxx/download.html>. Versions supported by client side are as follows: English/Simplified Chinese/Traditional Chinese Client side of Symbian60 3rd Operation System; English/Traditional Chinese Client side of WinMobile5.0/6.0/6.1 Operation System; iPhone mobile can be supported. Please refer to "Appendix5: Introduction of Mobile phone Monitor" for theDetails.

2) Web Client Operation

Open IE browser, type in IP address, the log-in screen will appear.

Note1: If PPPoE or DHCP is selected, user has to check IP address again after restarting device.

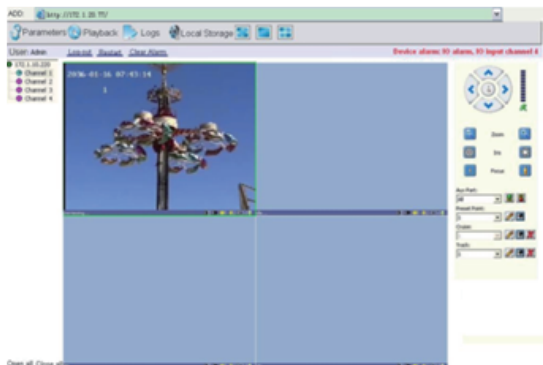
Note2: If it is the first time login through IE, please install the Active X of IE and type in user name and password. Default user name and password are: Admin (case sensitive). If the plug-inscan not be downloaded normally, please lower IE's security level:

Click [Tools] and choose [Internet Options] in the IE menu bar to enter the 'Internet Options' page. Choose [Security] and click [Custom level...] to enter the 'Security Settings' page, Enable ActiveX controls and plug-ins,Click [OK] to save the settings.

Note3: Compared with the local side, the added settings on IE Web client side are as the table below:

Table V 1 Settings added on IE side	
Menu	Contents
<Server>Tab	Name of DVR is configurable on Web client side.
<Channel>Tab	The channel OSD is User-defined.
<Device>Tab	User can adjust DVR time accordance with PC time.
<State>Tab	Device states can be viewed directly.

3) Web Screen Description



*Address

Display the DVR IP address.

*Tool Bar



The description of icons from left to right is:

Configure device parameters.

Search and playback record files.

View logs and export them.

Set the storage directory of record files.

Click to switch image view modes among full-screen, single split view mode and 4/9/16 splits view mode.



Log-out, restart device, Clear alarm

*Alarm Notification

When network connection is broken or abnormal, the alarm notification of "No heartbeat of device, please check the network!" will be displayed in the right up side of the main screen. After recovery of network, the preview will be displayed automatically.


When alarms of remote notification occur, the alarm notification with alarm input number contained such as "Device alarm: IO alarm, IO input x" will be displayed in the right up side of the main screen.

When alarms of motion detection with remote notification occur, the alarm notification with the alarm channel number contained such as "Device alarm: motion detection, channel 1" will be displayed in the right up side of the main screen.

When alarms of video loss with uploading to center occur, the alarm notification with the alarm channel number contained such as "Device alarm: video loss, channel x" will be displayed in the right up side of the main screen.

*Preview

: Adjust image contrast up/down.

: Adjust brightness up/down.

: Start/stop voice monitoring. The icon will turn to green when sound monitoring.

: Start/stop recording. The icon will turn to green when recording.

: Click to snapshot.

: Stop preview.


Note: Click  to set the storage directory of record files and pictures captured.

*PTZ Setting

The PTZ setting of client web is similar as the PTZ operation of local device, please refer to 4.4 Camera Control.

Note: IE side supports 4 auxiliaries setting.

4) Device Parameters Settings

Click , the parameters configuration screen will appear. All of the configurations are divided into the following six selections:



*Server

It includes the configuration of server, network, and version information. All of these configurations can be set in [Tool Bar]→[System].

Note: If the DHCP mode selected, the IP address is assigned automatically without being modified.

*Channel

User can set motion detection, video loss, OSD, image bit rate and frame rate, image parameters and record schedule here.

Note: User is allowed to set single channel first, and then to copy the settings to the other channels.

*Serial

User can set PTZ protocol, baud rate, and address code here. All of these settings can be done by selecting from [Tool Bar]→[System]→[Video Setting].

*Alarm

User can set IO alarm and event handling here. All of these settings can be done by selecting from [Tool Bar]→[System]→[Alarm Setting].

*User Management

Including user authority and password setting. Relevant interface information should be [Tool Bar]→[System]

→[System Setting]→[Advanced Setting>>].

“User” authority and password can be changed by “Admin”,

*Device

Upgrade: Click [Browse] to select the software package needed, and click [Start Upgrade] to progress. User can stop the progress of upgrade by clicking [Stop Upgrade].

Adjust Time: Click [Adjust Time] to adjust time of device accordance with the PC time.

*State

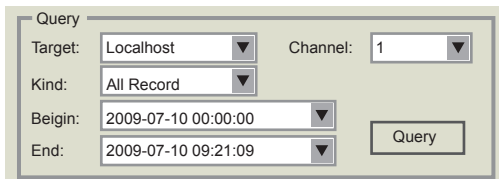
The information of HDD and channel state is contained here.

5) Playback

Click , the playback screen will appear. It includes file search, playback and download.

*File Search

The file search part is on the right upper side of the screen, please set target, type, start time and end time there. Then click [Query] to start searching. The result will list on the table. Specify the files in the table list and click on the playback control button or download button to do the relevant operations.



Query

Target: Localhost Channel: 1

Kind: All Record

Begin: 2009-07-10 00:00:00

End: 2009-07-10 09:21:09

Query

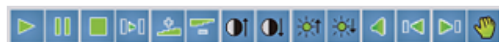
*File Playback


















The play control screen is on the left side of the screen. It includes image display area, play control bar, and channel information.

Click [Play], the record files selected will be displayed in time order. The progress of playing is shown as the figure below:



The playing control bar is shown as the figure below. The descriptions of all these icons from left to right are as follows:



-  Play;  Pause;  Stop;  Go to next frame;
-  Fast play option (The speed of playing will be doubled by each clicking. It includes: 2X, 4X, 8X, and 16X);
-  Slow play option (The speed of playing will be half down by each clicking. It includes 1/2X, 1/4X, 1/8X, and 1/16X);
-  Enhance contrast;  Reduce contrast;
-  Enhance brightness;  Reduce brightness;
-  Open/close voice;  Go to previous file;
-  Go to next file ( and  is enabled only when multiple record files being selected to play);
-  Snapshot (the storage directory can be set on the pop-up screen by clicking ).

The information of the record file selected will be displayed in the area shown as the figure below. It includes device's IP address, current play speed, channel number and start/end time of the record file.


Target: 172.1.10.220 Play Speed: normal

Channel: 1



Time:

*File Download


The File download operation part is on the right bottom of the screen.

Click  to set the storage directory of the file selected. Click [Download] to start downloading.

6) Bidirectional Talk

Click  in the Tool Bar to enable the bidirectional talk between Client Web and DVS side. A microphone should be connected to the device through the Line-in interface. Click  again to stop talking.

7) Log

Click , the screen of device logs will appear. There are four options for choosing: All, according to time, according to type, according to time and type.

To search logs, please select the search mode and channel number needed first and then click [Search] to progress.

Click [Export] to export logs in html format.

8) Remote Upgrade

Select <Server>-<Manage>, click [Browse] to specify the file for upgrade, and click [Start] to upgrade. User can click [Stop] to stop upgrading in progress.

9 Maintenance

Please enter<Tool Bar>→<System>→<Maintenance>or <Save> to enter screen of maintenance.

1) Log view

1 Select the type of log to be searched: All/ Operation/ Exception/ Alarm.

2 Select the time scope to be searched.

3 Click [Search] to display the detail information of log.

Note1: If the logs searched contains alarm event log, user can directly play the video recorded during the alarm event happens by clicking [▶] on the right side of screen.

Note2:The maximum number of logs supported currently is 10000. The storage mode adopts overwrite mode: continuously overwrite the oldest data when the database is full.

2) Upgrade

The upgrade modes supported now are USB/ IE/ Remote Software:

USB: Please make sure the USB device is connected correctly and the upgrade applications have already being copied into USB root directory. Please follow the prompts to operate.

After accomplishing upgrade, the Restart prompt screen will appear. Please restart the device, the latest software will be installed automatically then.

IE: Please refer to 5.2.2 Device Parameters Settings for details.

Remote Software: Please follow the user's manual of remote software to operate.

3) Device Information

HDD Size: display the current total capacity of HDD and the remaining capacity

Hardware Version: display the version of hardware.

Software version: display the version of software.

Release date: for the current software.

4) Format HDD

Please make sure that all of the important record files have already being saved before formatting HDD.

Please stop all of the recordings in the beginning of formatting HDD. And follow the prompts to operate.

5) Lock out

Please enter<Tool Bar>→<System>→<Save Setting>→<Log Out>, the preview screen will appear together with the log-in box. Please type in the password for other operation.

6) Restore to factory defaults

Please Enter <Tool Bar>→<System>→<Save Setting>→<Restore Defaults>, system will remind you of whether recovering or not. Click [Confirm] to process restoring.

Note1: Please refer to Appendix VI for the default values.

Note2:The system language, time, camera P/N system, and network settings (IP address, subnet mask, gateway, HTTP port) will not be recovered by restoring to factory defaults.

7) Input/output parameter

Please enter<tool bar>-<system>-<maintenance>, when USB is connected, the device setting parameters can be exported to the USB device.

Parameters can import to the device from USB. Reboot the device, and the imported parameters will take effect.

Note: When importing parameters from a USB device, only import parameters from a DVR with the same SKU or model number. Otherwise, importing parameters may permanently damage the device.

8) Auto-maintenance

Please enter<tool bar>-<system>-<maintenance>. Maintenance will not reboot automatically if auto-maintenance is off. There are three types of maintenance: per day, per week, per time.

10 Advanced Settings

Note: Operation of this chapter needs permission referring to the current user's authority, please using Admin to log in.

1) Settings of System

Please enter<Tool Bar>→< Setting >→<System>→[Advanced Setting>>]

Select <PREVIEW CRUISE>→[>] to enter the setting screen. Set the preview cruise interval, 1/4/9 cruise way. It will take effect after saving the settings, the screen will be cruised in accordance with the setting intervals over the segmentation preview. Set < PREVIEW CRUISE> is not enabled, the preview will be back to the initial interface after saving the setting.

Select <DVR IDNUMBER>, the number can be entered : 1 ~ 99. The remote controller and 485 keyboard can control device one to one when setting the same number .

Select <SPOT SETTING >→[>] to enter the setting screen. Set SPOT channel and time: the DWELL time decides a period of channel which be selected.

Click [Add] to add the channel to the Matrix output. After being saved, the video output will take effect. All of video channels connected with video inputs of DVR can be sequentially switched for SPOT monitoring output.

Select<DST>-[>] to enter DST settings. User can set beginning and ending dates and time of DST. Device will automatically adjust the time after being saved.

After started <menu timeout>, when there is no any mouse motion on the menu timeouts settings screen for a while, preview screen and search screen, control device will automatically lock the screen. User need to re-login to unlock the screen; PTZ, video playback and back-up screen are never be locked.

Select <channel lock>-[>] to enter channel lock setting screen. Click the channel as wanted, and select [OK]. User can not see the locked channel after login out. Only Admin can set and unlock channel lock settings.

Note: <system setup>-<advanced settings>, user can set recourse distribution mode, code mode and playback mode.

2) User management

Please enter<tool bar>-<setting>-<system setup>-<advanced setting>. Select <ADD USER>→[>] to enter the settingscreen, the password of new user is 111111, user can enter < Tool Bar>→< Setting >→<System>→<Password Settings> to modify the password; Select <DEL USER>→[>] to enter the settingscreen, Admin can delete the specified user.

Select < AUTHORITY MANAGE >→[>] to enter the settingscreen.select < AUTHORITY MANAGE >→[>] to enter the settingscreen.

Authority setting contains the authority optionsof local and remote.



Fig IV 3AuthoritySetting

Move highlight icon to an option using [Direction] buttons. Press [OK] button or click mouse to select the option.

3) Advanced Setting of Record

Please enter <Tool Bar>→< Setting >→<Record>→[Advanced Setting>>]→<SUB STREAM>, select Enable, press [>] key to enter the setting screen. Then user can customize the sub-stream frame rate and bit rate. Sub-stream support frame rate 1-15, bit rate 32K-512K.

4) Advanced Setting of Video

Please enter <Tool Bar>→<ring/ " BuzzzeVideo>d [Advanced Setting>>],

*MOTION HANDLING

After the setting area moveingmotion, the incident could be linked to those handling : "RECORD " / " ALARM OUT " / " Buzzer " / " UPLOAD "

Note: Please refer to "4.2.2 Motion Detection Settings" for the setting of detection area and sensitivity

*VIDEO LOST HANDLING

After the selected video channel being lost, the incident could be linked to those handling : " ALARM OUT " / " Buzzer " / " UPLOAD "

*CHANNEL NAME SETTING

After the selected video channel being lost, the incident could be linked to those handling : " ALARM OUT " / " Buzzer " / " UPLOAD " User can input the channel name through the soft keyboard. It only support letters, select the [OK] to confirm the settings.

Chapter Five: Appendix

1 Specifications

Table VI 1 Specifications		
DVR Type		
		4 channel DVR
		8 channel DVR
System		Linux 2.6 O/S Pentaplex operation: record, playback, preview and network browse, backup supported.
I/O Interface	Video Input	4 channel, BNC, 1Vp-p, 75Ω PAL (625 line, 50 f/s), NTSC (525 line, 60 f/s), SECAM(625 line, 50 f/s)
	Audio Input	4 channel, RCA, 2Vp-p, 600Ω
	VGA Output	1 channel, DIN-15(optional); 800×600@60Hz- 1024×768@60Hz- 1280×1024@60Hz- 1440×900@60Hz
	CVBS Output	1 channel, BNC, 1Vp-p, 75Ω
	Audio Output	1 channel, BNC, 2Vp-p, 600Ω
	USB Interface	Support USB storage device, USB mouse, USB burner.
	RS422	1 port, receiving and transmitting duplex supported.
	Network Interface	RJ45 10/100M self-adaptive
	Alarm Input	4 channel NO/NC
	Alarm Output	1 channel NO/NC, relay: 30VDC 1A, 125VAC 1A
	SATA Interface	1 SATA port, 1 SATA HDD up to 1T supported.
Video & Audio		
Video	Video Compression	H.264 Baseline
	Video Standards	PAL/NTSC/SECAM
	Video Compression Resolution	PAL:352×288(CIF) NTSC: 352×240(CIF) PAL:704×288(Half D1/2CIF) NTSC:704×240(Half D1/2CIF) PAL:704×576(D1/4CIF) NTSC: 704×480(D1/4CIF)
	Frame Rate	PAL:25F/S/CH 1, 3, 6, 12, 25 and user-defined optional; NTSC: 30F/S/CH 1, 3, 7, 15, 30 and user-defined optional.
	Video Output Bit Rate	32kbps-2048kbps(14M byte/hour - 922M byte/hour)
	Preview Resolution	PAL: 720×576(D1), horizontal line 550, vertical line 450 NTSC: 720×480(D1), horizontal line 550, vertical line 400
	Playback Resolution	PAL: 352×288(CIF), horizontal line 300, vertical line 250 NTSC: 352×240(CIF), horizontal line 300, vertical line 220
Audio	Audio Compression	G.726 ADPCM
	Input/Output Sampling Rate	8KHz
	Audio Channel Type	Mono
	Sampling Bit	16 bit
Environmental	Power Supply	DC 12V 3A, positive inside, negative outside, power adapter is connected outside.
	Operating Temperature	0℃ — +50℃
	Operating Humidity	10% — 90%RH
	Power Consumption	<12W (without HDD)
	Dimension	340mmx260mmx50mm(W*D*H)
Table VI 2Main Functions		
Main Functions		
Operating Interface	Multiple control methods: mouse, IR remote controller, front panel and GUI with navigation supported. Recording status and alarming status can be displayed directly on desktop and front panel.	
Record	Five recording modes: Manual, Schedule, Motion Detection, Alarm, and Motion Detection & Alarm supported. Selectable Record Quality: Best, High, Mid, Low and User-defined.	
Playback	Play progress bar supported. Multiple channel video/audio playback simultaneously. Play, pause, stop, single frame forward, fast forward and backward (up to 4/9ruple when playback 4 channels) supported.	

Backup	Multiple backup modes: USB flash disk, USB HDD, USB CD-RW, and DVD-RW supported. The output format can be H.264 RAW.
Network	IPv4, PPPoE client, DHCP client and TCP/UDP protocol supported. The Web Client and Client Application Software are provided for remote configuration, video browse, local recording, local and remote playback, and remote PTZ control. Network transmitting supports independent coding. The time delay of LAN is less than 300ms.
Log Operation	The log of operation and alarming will be saved automatically. User can directly play the record files that being record when the alarm event occurs.
PTZ Control	Multiple protocols: Pelco-P, Pelco-D, and Samsung, etc. supported. Upgrade of protocol supported. Multiple PTZ operations: Pan, Tilt, Zoom, Preset, Sequence, Track and Auxiliary Switch supported.
Alarm Management	4 channel alarm input NO/NC supported. Motion detection and alarm of video loss supported. Trigger recording, Linkage PTZ preset and Bee alarm supported. The alarm information can be sent to Web Client or Client Application Software through network.
Account Management	Multi- account supported. Users can set & recover password, authentication management.
Auxiliary Function	Hardware Watch Dog supported. Device will be restarted if operations being not responded for 30 seconds or more.

2 Methods of Calculating HDD Capacity

1) Calculate the maximum capacity of the build-in hard disk.

*Timing Recording:

Step 1: Calculate the maximum capacity of the hard disk needed in selected channel per hour, suppose as S_i (MByte) (i is the channel number), and suppose the bit rate of the channel selected as D (Kbit/s). The formula of calculation is:

$$S_i = (D \times 3600) / (8 \times 1024) = D \times 0.439453125 \text{ MB}$$

Step 2: Confirm the storage time length, suppose as T hours. The total maximum capacity of the hard disk needed in selected channel for T hours, suppose as S_t is:

$$S_t = T \times S_i$$

Step 3: Confirm the total numbers of the channels, suppose as n . The total maximum capacity of the hard disk needed, suppose as S_c is:

$$S_c = S_1 + S_2 + \dots + S_n$$

*Alarm Recording

Suppose the rate of alarming as $\alpha\%$. The capacity of the hard disk needed in alarm recording supposed as S_a is:

$$S_a = S_c \times \alpha\%$$

2) Calculate the compression bit rate for recording T hours.

*Timing Recording

Step 1: Suppose the capacity of the hard disk as S , the total numbers of the channel as n . The capacity of hard disk needed per channel supposed as D_i is:

$$D_i = S / n$$

Step 2: Suppose the total recording time as T hours. The capacity of the hard disk needed per hour per channel supposed as D_t is:

$$D_t = D_i / T$$

Step 3: The bit rate of all the channels supposed as D_c is:

$$D_c = D_t \times (8 \times 1024) / 3600 = D_t \times 2.2756 \text{ (Kbit/s)}$$

*Alarm Recording

Step 1: Suppose the rate of alarming as $\alpha\%$, capacity of hard disk as S , the total numbers of the channel as n . The capacity of hard disk needed per channel supposed as D_i is:

$$D_i = (S / n) \times \alpha\%$$

Step 2: Suppose the time length of recording as T (hours). The capacity of hard disk needed per hour per channel supposed as D_t is:

$$D_t = D_i / T$$

Step 3: The bit rate of all channels supposed as D_c is:

$$D_c = D_t \times (8 \times 1024) / 3600 = D_t \times 2.2756 \text{ (Kbit/s)}$$

3 Default Values

Table VI 4 Default Values			
Menu		Options in menu	Default
System Settings	LANGUAGE	Multi-language	Chinese
	Video Standard	PAL、NTSC、SECAM	Auto adjust
	VGA Setting	800×600@60Hz、1024×768@60Hz、1280×1024@60Hz、1440×900@60Hz	800×600@60 Hz
	Time Format	12 hours、24 hours	Time Format
	Time Setting	Click into sub menu screen	year—month—dayhour: minute PM
	DST	Off, on, click into sub menu screen	Off
	Password setting	Click into sub menu screen.	Admin: 111111 User: 111111
	HDD Overwrite	On ,off	Reach the maximum number of users
	Add user	Click into sub menu screen	Click into sub menu screen
	Delete user	Click into sub menu screen	
	Authority manage	Click into sub menu screen	Admin
	Preview Cruise	Off, on	Cruise time:2,5,10,15,20seds; cruise mode:1,3,9
	Device ID number	1—99	1
	Menu time-out setting	Off,30seds,1min,5mins	off
	Channel lock setting	Click into sub menu screen	
Video settings	Rescourse distribution mode	Click into sub menu screen	
	Record Schedule	Click into sub menu screen	24 hours
	Video quality	Best, High, Mid,Low	Best
	Record Frame Rate	PAL: Full, 12, 6, 3, 1, User-defined NTSC: Full, 15, 7, 3, 1, User-defined SECAM: Full, 12, 6, 3, 1, User-defined	Full
	Record Resource	Video, Video & Audio	Video & audio
	OSD Setting	Channel name, Channel name and timestamp, timestamp, none	Channel name and timestamp
	Record Resolution	CIF、Half D1、D1	CIF
	Sub-code	Frame rate and data bit user-defined settings: Frame rate:1-15 fps Data bit:32-512 kbps	On; Frame rate:5fps Data bit:96 kbps
	PTZ protocol	Pelco-P、Pelco-D、Samsung、Panasonic、yaan、yiboer、pelco-p_cal98、vts、pelco-d_jabsc、pelco-p_lx、vido、tiandy、sytt、pelco-d_cg、pelco-d_lx、pelco-d_cf、pelco-d_mj、pelco-p_mj、pelco-d_hd、pelco-d_dt、pelco-d_jg、jy2000、pelco-d_dsx、pelco-d_qg、pelco-d_fh、pelco-d_htz、pelco-d_xz、pelco-d_pts、td500、dt-618、philips、pelco-d_jg	Pelco-P
	PTZ Baud Rate	1200、2400、4800、9600	2400
	PTZ address	Click into sub menu screen	Channe-1
	Color settings	brightness, contrast, hue and saturation: 6/6/8/8	6/6/8/8
	Motion Detection	Highest Sensitivity, Normal Sensitivity, Low Sensitivity	Normal Sensitivity
	Mosaic	On,off, click into sub menu screen	Off
Network Settings	Motion Detection Event Handling	record, zoom out , alarm out , buzzer, upload, email	record
	Video loss handling	Alarm out, sound, report to the center, email	
	Video Loss Handling	Alarm out, buzzer, upload,email	Off
	Chanlle name settings	Click into the sub menu screen	CH1/2/3...../8
	Network	Static IP、Dynamic access of IP、PPPoE	Static IP
	IP Address	Click into sub menu screen.	192.168.0.10
	Subnet Mask	Click into sub menu screen.	255.255.255.0
	Gateway	Click into sub menu screen.	192.168.0.1
	HTTP Port	Click into sub menu screen.	80

Network Settings	Command Port	Click into sub menu screen.	5050
	Media Port	Click into sub menu screen.	6050
	PPPoE Setting	ON,OFF, Click into sub menu screen.	Off
	PPPoE address	Click into sub menu screen.	0.0.0.0
	DNS address	Click into sub menu screen.	0.0.0.0
	Dynamic Domain Name	ON,OFF	Off
	Auto Register	ON,OFF	Off
	File Sharing	Click to select or disselect	Off
	Email Setting	Click into sub menu screen	
	Mobile Port	Click into sub menu screen.	7050
	UPnP setting	Off, on, click into sub menu screen	Off
	Dedicated server	Off, on, click into sub menu screen	Off
	FTP setting	Off, on, click into sub menu screen	Off
	IP white/black list	Off, white list, black list, click into sub menu screen	Off
	Time synchronized	Off, on, click into sub menu screen	Off
Alarm settings	Alarm Input Type	N/O. N/C.	N/O.
	Event Handling	record, PTZ preset, zoom out, alarm out , buzzer , upload, email	Trigger alarm output, buzzer and email
	Alarm Setting	OFF,1-10	ON
	Alarm Zoom Out	1-10 seconds, OFF	OFF
	Abnormal device	click into sub menu screen :alarm out, buzzer, upload, email,FTP file upload	all

4 Introduction of Mobile phone Monitor

1) Configuration of server (DVR)

Setup device,type in user name and password to log in.

Shown as the figure V1-3 below, click [Net] and then click [Next Page] to enter into screen of [Mobile port].



FigVI 5Screen of DVR sub stream configuration



FigVI 6Screen of DVR sub stream settings

Shown as the figure V1-6 below to set [FPS] and [Bitrate], the frequently-used frame rate is 3 fps, and data bit 128 kbps.

2) Installation and running of client (mobile phone) procedure

***Versions supported by client side are as follows**

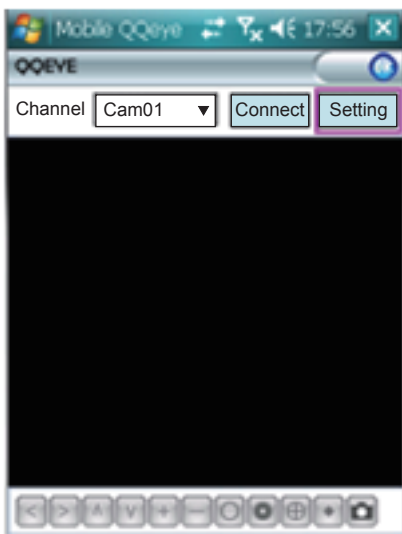
English/Simplified Chinese/Traditional Chinese Client side of Symbian60 3rd Operation System;
English/Traditional Chinese Client side of WinMobile5.0/6.0/6.1 Operation System;iPhone mobile can be supported.

Note: Let's take winmobile6.0 for example to show you how to install and run the procedure.

***Download Mobile phone client side**

Enter into mobile phone system and type in IP address into IE address column in the form of <http://xxx.xxx.xxx.xxx/download.html>. Then press [Enter], the screen shown as the figure VI-7 below will appear. Select the corresponding client side software by using up and down button of mobile phone.

FigVI 7Screen of download mobile phone side software



FigVI 8Main screen of mobile phone monitor software

After finishing installation, please select QQeye in the start-up menu.

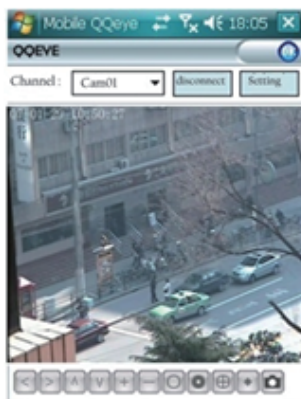
***Setting**

Click [Setting] on the Fig.VI-8, the fig.VI-9 shown as below will appear.

Type in the right [User Name] and [Password], which must be according with the user name and password on DVR side.Type in the IP address on [Server] column.Type in the [Port] for connection such as 7050.Click [OK] to save and exit the screen.



FigVI 9Screen of mobile phone settings



FigVI 10 Preview screen of mobile phone

***preview**

Click [Connect] on the Fig.VI-8, the fig.VI-10 shown as the figure below will appear after several seconds of buffer.

You can select the channel that you want to preview by selecting in the pull-down menu of [Channel] column.Or you can click [Disconnect] to stop preview.

***Operations**

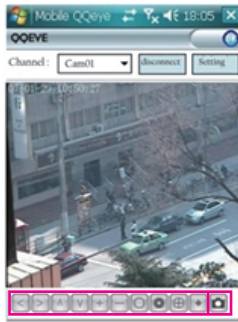


Fig 5-11 Buttons operation of mobile phone



all of these buttons are operated by PTZ.

From left to right, they are [Turn Left][Turn Right][Move Up][Move Down][Zoom out][Zoom in][Focus far][Focus near][Enlarge Iris][Narrow down Iris].

 is for capture picture.

Note: Thanks for using our products. The installation above is take operation system of Windows Mobile for example. There may be some differences between different software versions and operation systems without being noticed.